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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,378	02/08/2002	Keith S. Champlin	C382.12-0111	6039

7590 09/09/2003

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EXAMINER

LUK, LAWRENCE W

ART UNIT	PAPER NUMBER
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2838

DATE MAILED: 09/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/073,378		CHAMPLIN, KEITH S.	
	Examiner		Art Unit	
	Lawrence Luk		2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-143 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 78-143 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-8, 14, 15, 39-42, 44-46, 52, 53 and 77 is/are rejected.
- 7) ☒ Claim(s) 5, 9-13, 16-38, 43, 47-51 and 54-76 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>28</u> | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Double Patenting

1. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

2. Claims 1, 2, 40, 4, 42, 6-8, 44, 45, 46, 14, 52, 39, and 77 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 7, 8, 18, 21, 24, and 25 of U.S. Patent No.6,495,990. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

Claim 1 is the same claim as claim 1 in '990.

Claim 40 is the same as claim 7 in '990 and claim 2 is substantially the same except that the order of the limitations is switched.

Claims 4 and 42 are substantially the same as claim 8 in '990.

Claims 6 and 44 are substantially the same as claim 18 in '990.

Claim 39 is substantially the same as claim 21 in '990.

Claims 7 and 45 are substantially the same as claim 24 in '990.

Claims 8 and 46 are substantially the same as claim 54 in '990.

Claims 14 and 52 are substantially the same as claim 24 in '990.

Claim 77 is substantially the same as claim 25 in '990.

Allowable Subject Matter

3. Claims 78-142 are allowed

Claim 78 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest for determining absolute stored charge of an electrochemical cell or battery include computation circuitry coupled to said response sensing circuitry and adapted to utilize said response to evaluate elements of a circuit model containing a plurality of parallel G-C subcircuits connected in series, said computation circuitry further adapted to evaluate said absolute stored charge from the value of the capacitance element of a particular parallel G-C subcircuit. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 79 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest for determining an exchange current of an electrochemical cell or battery include computation circuitry coupled to said response sensing circuitry and adapted to utilize said response to evaluate elements of a circuit model containing a plurality of parallel G-C subcircuits connected in series, said computation circuitry further adapted to evaluate said exchange current from the value of the conductance element of a particular parallel G-C subcircuit. It is these features found in the claim, as they are claimed in the combination, which has not been found,

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taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 80 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest for determining state-of-charge of an electrochemical cell or battery include computation circuitry coupled to said response sensing circuitry and adapted to utilize said response to evaluate elements of a circuit model containing a plurality of parallel G-C subcircuits connected in series, said computation circuitry further adapted to evaluate said charge transfer conductance from the value of the conductance element of a particular parallel G-C subcircuit. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 81 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest for determining total storage capacity of an electrochemical cell or battery include computation circuitry coupled to said response sensing circuitry and adapted to utilize said response to evaluate elements of a circuit model containing a plurality of parallel G-C subcircuits connected in series, said computation circuitry further adapted to evaluate said total storage capacity from the value of the conductance element of a particular parallel G-C subcircuit. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claims 87-89 are allowed due to their dependency on claim 81.

Claim 82 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest for determining maximum exchange current of an electrochemical cell or battery include computation circuitry coupled to said response sensing circuitry and adapted to utilize said response to evaluate elements of a circuit model containing a plurality of parallel G-C subcircuits connected in series, said computation circuitry further adapted to evaluate said maximum exchange current from the value of the conductance element of a particular parallel G-C subcircuit. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 83 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest for determining absolute cranking current of an electrochemical cell or battery include computation circuitry coupled to said response sensing circuitry and adapted to utilize said response to evaluate elements of a circuit model containing a plurality of parallel G-C subcircuits connected in series, said computation circuitry further adapted to evaluate said absolute cranking current from the value of the resistance element of a particular parallel G-C subcircuit. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claims 84-86 are allowed due to their dependency on claim 83.

Claim 90 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest for determining a charge transfer conductance of an electrochemical cell or battery include computation circuitry coupled to said response sensing circuitry and adapted to utilize said response to evaluate elements of a circuit model containing a plurality of parallel G-C subcircuits connected in series, said computation circuitry further adapted to evaluate said charge transfer conductance from the value of the conductance element of a particular parallel G-C subcircuit. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

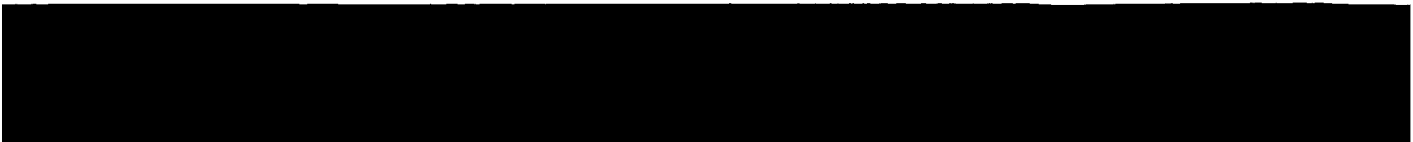
Claim 91 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest for determining a double layer capacitance of an electrochemical cell or battery include computation circuitry coupled to said response sensing circuitry and adapted to utilize said response to evaluate elements of a circuit model containing a plurality of parallel G-C subcircuits connected in series, said computation circuitry further adapted to evaluate said double layer capacitance from the value of the capacitance element of a particular parallel G-C subcircuit. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 92 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest for determining a maximum charge transfer

conductance of an electrochemical cell or battery include computation circuitry coupled to said response sensing circuitry and adapted to utilize said response to evaluate elements of a circuit model containing a plurality of parallel G-C subcircuits connected in series, said computation circuitry further adapted to evaluate said maximum charge transfer conductance from the value of the capacitance element of a particular parallel G-C subcircuit and the conductance element of a difference parallel G-C subcircuit. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 93 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest for determining a maximum double layer capacitance of an electrochemical cell or battery include computation circuitry coupled to said response sensing circuitry and adapted to utilize said response to evaluate elements of a circuit model containing a plurality of parallel G-C subcircuits connected in series, said computation circuitry further adapted to evaluate said maximum double layer capacitance from the value of the capacitance element of a particular parallel G-C subcircuit and the conductance element of a difference parallel G-C subcircuit. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 94 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest a method for determining the absolute stored charge



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of an electrochemical cell or battery include processing said time-varying electrical response to evaluate the capacitance element of a particular parallel G-C subcircuit of an electrical circuit representation of said cell or battery containing a plurality of said G-C subcircuits; and, determining the value of said absolute stored charge from the value of said capacitance element. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 110 is allowed due to its dependency on claim 94.

Claim 95 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest a method for determining an exchange current of an electrochemical cell or battery include processing said time-varying electrical response to evaluate the capacitance element of a particular parallel G-C subcircuit of an electrical circuit representation of said cell or battery; and, determining the value of said exchange current from the value of said conductance element. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 111 is allowed due to its dependency on claim 95.

Claim 96 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest a method for determining the state-of-charge of an electrochemical cell or battery include processing said time-varying electrical response to evaluate the capacitance element of a particular parallel G-C subcircuit of an

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electrical circuit representation of said cell or battery; and, determining the value of said state-of-charge from the value of said capacitance element and the value of said conductance element. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 112 is allowed due to its dependency on claim 96.

Claim 97 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest a method for determining the total storage capacity of an electrochemical cell or battery include processing said time-varying electrical response to evaluate the capacitance element of a particular parallel G-C subcircuit of an electrical circuit representation of said cell or battery; and, determining the value of said total storage capacity from the value of said capacitance element. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claims 103-105, 113 and 118 are allowed due to their dependency on claim 97.

Claim 98 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest a method for determining the maximum exchange current of an electrochemical cell or battery include processing said time-varying electrical response to evaluate the capacitance element of a particular parallel G-C subcircuit of an electrical circuit representation of said cell or battery; and, determining the value of said maximum exchange current from the value of said capacitance

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element and the value of said conductance element. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 114 is allowed due to its dependency on claim 98.

Claim 99 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest a method for determining the absolute cranking current of an electrochemical cell or battery include processing said time-varying electrical response to evaluate the capacitance element of a particular parallel G-C subcircuit of an electrical circuit representation of said cell or battery; and, correcting said absolute cranking current with a correction factor evaluated in accordance with values of said capacitance element and said conductance element to obtain said fully charged cranking current. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claims 100-102 and 115-117 are allowed due to their dependency on claim 99.

Claim 106 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest a method for determining a double layer capacitance of an electrochemical cell or battery include processing said time-varying electrical response to evaluate the capacitance element of a particular parallel G-C subcircuit of an electrical circuit representation of said cell or battery containing a plurality of said G-C subcircuits; and, determining the value of said double layer capacitance from the value of said capacitance element. It is these features found in the

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claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 119 is allowed due to its dependency on claim 106.

Claim 107 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest a method for determining a charge transfer conductance of an electrochemical cell or battery include processing said time-varying electrical response to evaluate the conductance element of a particular parallel G-C subcircuit of an electrical circuit representation of said cell or battery; and, determining the value of said charge transfer conductance from the value of said conductance element. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 120 is allowed due to its dependency on claim 107.

Claim 108 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest a method for determining a maximum double layer capacitance of an electrochemical cell or battery include processing said time-varying electrical response to evaluate the capacitance element of a particular parallel G-C subcircuit an the conductance element of a different parallel G-C subcircuit of an electrical circuit representation of said cell or battery; and, determining the value of said maximum double layer capacitance from the value of said capacitance element and the value of said conductance element. It is these features found in the claim, as

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they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 121 is allowed due to its dependency on claim 108.

Claim 109 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest a method for determining a maximum charge transfer conductance of an electrochemical cell or battery include processing said time-varying electrical response to evaluate the capacitance element of a particular parallel G-C subcircuit an the conductance element of a different parallel G-C subcircuit of an electrical circuit representation of said cell or battery; and, determining the value of said maximum charge transfer conductance from the value of said capacitance element and the value of said conductance element. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 122 is allowed due to its dependency on claim 109.

Claim 123 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest apparatus for determining state-of-charge of an electrochemical cell or battery include computation circuitry responsive to said time-varying response and adapted to evaluate a charge transfer conductance and a double layer capacitance, said computation circuitry further adapted to determine said state-of-charge by combining values of said charge transfer conductance and said double layer capacitance. It is these features found in the claim, as they are claimed in the

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combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 124 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest apparatus for determining state-of-charge of an electrochemical cell or battery include sensing time-varying electrical response to time-varying electrical excitation of said cell or battery; processing said time-varying electrical response to evaluate a double layer capacitance and a charge transfer conductance; and, determining said state-of-charge by combining values of said double layer capacitance and said charge transfer conductance. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 125 is allowed due to its dependency on claim 124.

Claim 126 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest apparatus for determining total storage capacity of an electrochemical cell or battery include computation circuitry responsive to said time-varying response and adapted to evaluate a charge transfer conductance and a double layer capacitance, said computation circuitry further adapted to determine said total storage capacity by combining values of said charge transfer conductance and said double layer capacitance. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 127 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest a method for determining total storage capacity of an electrochemical cell or battery include processing said time-varying electrical response to evaluate a double layer capacitance and a charge transfer conductance; and, determining said total storage capacity by combining values of said double layer capacitance and said charge transfer conductance. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 128 is allowed due to its dependency on claim 127.

Claim 129 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest apparatus for determining absolute stored charge of an electrochemical cell or battery include computation circuitry responsive to said time-varying response and adapted to evaluate a double layer capacitance, said computation circuitry further adapted to determine said absolute stored charge from the values of said double layer capacitance. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 130 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest a method for determining absolute stored charge of an electrochemical cell or battery include processing said time-varying electrical response to evaluate a double layer capacitance; and, determining said absolute stored charge from the values of said double layer capacitance. It is these features found in the

claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 131 is allowed due to its dependency on claim 130.

Claim 132 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest apparatus for determining an exchange current of an electrochemical cell or battery include computation circuitry responsive to said time-varying response and adapted to evaluate a charge transfer conductance, said computation circuitry further adapted to determine said exchange current from the values of said charge transfer conductance. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 133 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest a method for determining exchange current of an electrochemical cell or battery include processing said time-varying electrical response to evaluate a charge transfer conductance; and, determining said charge transfer conductance. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 134 is allowed due to its dependency on claim 133.

Claim 135 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest apparatus for determining a maximum double layer capacitance of an electrochemical cell or battery include computation circuitry

responsive to said time-varying response and adapted to evaluate a double layer capacitance and a charge transfer conductance, said computation circuitry further adapted to determine said maximum double layer capacitance from the values of said double layer capacitance and said charge transfer conductance. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 136 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest a method for determining a maximum double layer capacitance of an electrochemical cell or battery include processing said time-varying electrical response to evaluate a double layer capacitance and a charge transfer conductance; and, determining said maximum double layer capacitance from the values of said double layer capacitance and said charge transfer conductance. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 137 is allowed due to its dependency on claim 136.

Claim 138 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest apparatus for determining a maximum charge transfer conductance of an electrochemical cell or battery include computation circuitry responsive to said time-varying response and adapted to evaluate a double layer capacitance and a charge transfer conductance, said computation circuitry further

adapted to determine said maximum charge transfer conductance from the values of said double layer capacitance and said charge transfer conductance. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 139 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest a method for determining a maximum charge transfer conductance of an electrochemical cell or battery include processing said time-varying electrical response to evaluate a double layer capacitance and a charge transfer conductance; and, determining said maximum charge transfer conductance from the values of said double layer capacitance and said charge transfer conductance. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 140 is allowed due to its dependency on claim 139.

Claim 141 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest apparatus for determining a maximum exchange current of an electrochemical cell or battery include computation circuitry responsive to said time-varying response and adapted to evaluate a double layer capacitance and a charge transfer conductance, said computation circuitry further adapted to determine said maximum exchange current from the values of said double layer capacitance and said charge transfer conductance. It is these features found in the claim, as they are

claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 142 is allowable. The reason for allowance is that the prior art of record fails to disclose or reasonably suggest a method for determining a maximum exchange current of an electrochemical cell or battery include processing said time-varying electrical response to evaluate a double layer capacitance and a charge transfer conductance; and, determining said maximum exchange current from the values of said double layer capacitance and said charge transfer conductance. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 143 is allowed due to its dependency on claim 142.

4. Claims 5, 9-13, 16-34, 43, 47-51 and 54 -77 are objected to as being dependent upon a rejected base claim.

In Claim 5 and 43, the prior art of record fails to teach or reasonably suggest that a source comprises a cell/battery charger or an alternator employed to charge said electrochemical cell or battery.

In Claims 9 and 47, the prior art of record fails to teach or reasonably suggest that the computation circuitry couples to an alarm actuated in accordance with the computed value or values of one or more said parameters;

In Claims 10, 11, 48 and 49, the prior art of record fails to teach or reasonably suggest that the parameter is absolute store charge and the computation circuitry

computes said absolute stored charge from the value of the capacitance element of a particular parallel G-C subcircuit of said electrical circuit representation;

In Claims 12, 13, 50 and 51, the prior art of record fails to teach or reasonably suggest that the parameter is exchange current and the computation circuitry computes said exchange current from the value of the conductance element of a particular parallel G-C subcircuit of said electrical circuit representation; Claims 16 and 54, the parameter is total storage capacity. Claims 17, 35-38 are dependent on Claim 16. Claims 55, 73-76 are dependent on Claim 54;

In Claims 18, 19, 56 and 57, the prior art of record fails to teach or reasonably suggest that the parameter is maximum exchange current and the computation circuitry computes said maximum exchange current from the value of the conductance element of a particular parallel G-C subcircuit and the value of the capacitance element of a different parallel G-C subcircuit of said electrical circuit representation;

In Claims 20, 21, 58 and 59, the prior art of record fails to teach or reasonably suggest that the parameter is charge transfer conductance and the computation circuitry computes said charge transfer conductance from the value of the conductance element of a particular parallel G-C subcircuit of said electrical circuit representation;

In Claims 22, 23, 60 and 61, the prior art of record fails to teach or reasonably suggest that the parameter is charge transfer conductance and the computation circuitry computes said charge transfer conductance from the value of the conductance element of a particular parallel G-C subcircuit of said electrical circuit representation;

In Claims 24, 25, 62 and 63, the prior art of record fails to teach or reasonably suggest that the parameter is maximum charge transfer conductance and the computation circuitry computes said maximum charge transfer conductance from the value of the conductance element of a particular parallel G-C subcircuit and the value of the capacitance element of a different parallel G-C subcircuit of said electrical circuit representation;

In Claims 26, 27, 64 and 65, the prior art of record fails to teach or reasonably suggest that the parameter is maximum double layer capacitance and the computation circuitry computes said maximum double layer capacitance from the value of the conductance element of a particular parallel G-C subcircuit and the value of the capacitance element of a different parallel G-C subcircuit of said electrical circuit representation;

In Claims 28, 29, 66 and 67, the parameter is absolute cranking current and the computation circuitry computes said absolute cranking current from the value of the resistance element of said series R-L subcircuit;

In Claims 30, 31, 68 and 69, the prior art of record fails to teach or reasonably suggest that the parameter is fully charged cranking current and the computation circuitry computes said fully charged cranking current from the value of the conductance element of a particular parallel G-C subcircuit, the value of the capacitance element of a different parallel G-C subcircuit, and the value of the resistance element of said series R-L subcircuit of said electrical circuit representation;

In Claims 32, 33, 34, 70, 71 and 72, the prior art of record fails to teach or reasonably suggest that the parameter is state-of-health and the computation circuitry wherein said computation circuitry computes state-of-health by comparing said fully charged cranking current with a reference number determined in accordance with a battery rating inputted on said input device, and the battery rating comprises a cold cranking ampere battery rating;

Claims 9-13, 16-34, 47-51 and 54-76 would be allowable if rewritten in independent from including all of the limitations of the base claim.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence Luk whose telephone number is (703)305-0617. The examiner can normally be reached on 7 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on (703) 308-1680. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-7724 for regular communications and (703)305-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-1782.

LWL
Aug 27, 2003

Lawrence Luk
examiner
8/27/03